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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,717

09/29/2005

Toshiko Yokota

3209-104

8743

6449

7590

08/24/2007

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WASHINGTON, DC 20005

EXAMINER

LAM, CATHY FONG FONG

ART UNIT

PAPER NUMBER

1775

NOTIFICATION DATE

DELIVERY MODE

08/24/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/532,717

Applicant(s)

YOKOTA ET AL.

Examiner

Cathy Lam

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 26-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05-07-2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

In view of the amendment and remarks filed on May 07, 2007, the pending claims continue to be unpatentable as following:

Election/Restrictions

1. Applicant's election of group I (i.e. claims 1-25) in the reply filed on May 07, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. This application contains claims 26-31 drawn to an invention nonelected with traverse in the reply filed on May 07, 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

3. Claims 8 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, it is unclear whether or not "a high-melting-point metal layer" is the same as the "a high-melting-point metal layer" referred to in claim 6. Clarification is required.

In claim 25, it is unclear whether or not "an upper electrode forming layer" is the same as the "an upper electrode forming layer" referred to in claim 9. Clarification is required.

Claim Objections

4. Claim 31 is objected to because of the following informalities: applicant is suggested to replace "the content of dielectric fillers.." with – an amount of dielectric fillers... --. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa et al (US 5685968) in view of Hiroki et al (JP 2002-367856).

Hayakawa discloses a ceramic substrate (1) with a thin film capacitor. The capacitor is formed onto the ceramic substrate through a connecting layer (2). A lower electrode base layer (3), a Ta₂N film (4), a TaON dielectric layer (6a), an anodic oxidize layer (6b) and an upper electrode connecting layer (7) and an upper electrode (8a1) (Fig. 7).

The connecting layer (2) is comprised of Ti and Cu, and the lower electrode base layer (3) is comprised Cu and Ni (col 5 L 44-45 & L 53-54). The Ta₂N film (4) and the TaON film (6a), both of which the examiner is taking the position that they are analogous to the claimed dielectric layer, has a thickness of 0.15 μm and 0.3-0.5 μm, respectively; wherein the combined thickness is less than 1 μm (col 6 L 3-4 & L 15-16).

Hayakawa discloses that the dielectric Ta₂N film (4) has surface defects and the electrode base layer (3) fill up all the surface defects (col 5 L 63-65). Another dielectric layer (6a) (or TaON) is formed onto the Ta₂N film (4) (col 6 L 14-17). The surface of the dielectric layer (i.e. TaON) (6a) is coated with an upper electrode connecting layer (7) of

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Ti-Cu material (col 6 L 43-45). Then, an upper electrode (8a1) made of copper, nickel and gold, is formed onto the Ti-Cu connecting layer (7) (Fig. 8).

The examiner is taking the position that the Ti-Cu connecting layer (7) and the lower electrode base layer (3) are analogous to the claimed binder metal layer and the high melting point metal layer because the metals (i.e. Cu, Ni, Ti) chosen for these layers meet the claimed material (i.e. claims 5 & 7).

The prior art is silent about using a polyimide resin to fill the surface defects of the dielectric layer.

Hiroki teaches a surface bonding material comprised of an organic macromolecules (5) and fine metal oxide particles (4). The surface bonding material is coated onto a copper metal foil which is used in a capacitor.

In view of the prior art teaching, one skill in the art would choose an organic material and a dielectric filler such as Hiroki's teaching to fill the surface voids because the dielectric filler are thermal resistive and the organic material enhances conformal bonding. Furthermore, one skill in the art would choose polyimide to be the organic material because polyimide is heat resistive and easily applicable, and it is widely used in the electronic field.

Regarding to the inorganic oxide sputter film, the binder metal layer and the high melting point metal layer, the examiner takes the position that these are well known materials used in capacitor field.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Cathy Lam
Primary Examiner
Art Unit 1775

cfl
August 20, 2007